

Remarks

Reconsideration of the above-captioned application is respectfully requested. Claims 1-4 and 15-19 have been rejected as being unpatentable over Vijaykumar, which as admitted in the Office Action fails to disclose heterogenous links, much less a software layer on top of an RDBMS for ensuring integrity of such links, in view of Sarkar, used as a teaching of a software layer on top of an RDBMS for providing referential integrity for heterogenous links. Claims 5-14 have been rejected as being obvious over Sarkar.

To overcome the rejections, Claim 1 has been amended to specify that the software layer maintains at least one data structure useful in ensuring referential integrity, as disclosed on page 3 of the specification, lines 13-15. Independent Claims 5, 11, and 15 have also been amended. Claims 1-19 remain pending.

Rejections Under 35 U.S.C. §103

Claims 1-4 and 15-19 have been rejected under 35 U.S.C. §103 as being unpatentable over Vijaykumar in view of Sarkar. As an initial matter, the stated motivation for the proposed combination is somewhat opaque, but regardless, the motivation does not appear to come from the prior art, as is otherwise required by MPEP §2143.01. citing In re Fine ("One cannot use hindsight reconstruction to pick and choose among isolated disclosures in the prior art"); see also In re Mills (the mere fact that a reference can be modified does not render an invention obvious, unless the modification is suggested by the prior art). Indeed, "rarely will the skill in the art component operate to supply missing knowledge or prior art to reach an obviousness judgement....Skill in the art does not act as a bridge over gaps in substantive presentation of an obviousness case, but instead supplies the primary guarantee of objectivity in the process", rejecting an obviousness argument by disapprovingly noting that the party asserting obviousness "is unable to point to any

specific teaching or suggestion for making this combination. VSI instead relies on what it presumes is the level of knowledge of one of ordinary skill in the art at the time of the invention to supply the missing suggestion to combine", Al-Site Corp. v. VSI Int'l, Inc., 174 F.3d 1308, 50 USPQ.2d 1161 (Fed. Cir. 1999). The CAFC went on to note that "To imbue one of ordinary skill in the art with knowledge of the invention, when no prior art reference or references of record convey or suggest that knowledge, is to fall victim to the insidious effect of a hindsight syndrome..."

Nothing in Vijaykumar, as admitted in the Office Action, appears to contemplate heterogenous links, much less a software layer on top of an RDBMS for maintaining integrity of such links. Sarkar, on the other hand, does not motivate use of a software layer that has a data structure for maintaining the integrity of such links on top of an RDBMS like the one disclosed in Vijaykumar. There is thus no evidence of a *prior art* suggestion to combine the references, but only the examiner's unsupported reasoning, which is insufficient under the MPEP. For this reason, the rejections of Claims 1-4 and 15-19 should be withdrawn.

Moreover, nothing in Sarkar envisions the use of a software layer that has a data structure for maintaining referential integrity, in contrast to, e.g., amended Claim 1. Instead, Sarkar's table R', shown in Figure 5 and discussed in a section of Sarkar relied upon by the examiner, exists *within one of the RDBMS of Sarkar*, not in the relied-upon software layer ("[t]his special table R' maintains the referential integrity over tables in schema 1 and schema 2", col. 10, lines 18-20). The software layer evidently only facilitates information exchange, col. 10, lines 20-22, without providing any actual integrity management, in contrast to amended Claim 1. Indeed, according to Sarkar, "[t]his invention extends these prior arts by using Uniform Resource Locators (URLs) *in relational databases* to reference objects...", col. 5, lines 27-30

(emphasis mine). In fact, according to Sarkar, "[a] uniform paradigm for multi-tier client/server *without a middle tier application server* is presented", col. 5, lines 45-48 (emphasis mine).

In other words, Sarkar fails to recognize the desirability of maintaining referential integrity for heterogenous links without modifying the underlying RDBMS, in marked contrast to the recognition in the present specification on page 2 ("One way to provide heterogenous linking referential integrity is to modify the RDBMS. This is not a trivial task. Accordingly, the present invention is directed to a system and method for providing heterogenous linking referential integrity without modifying the RDBMS..."). Not surprisingly, Sarkar sees no problem with putting its table R' in an RDBMS, or with using URLs within an RDBMS, instead of using a software layer on top of the RDBMS to maintain a data structure for ensuring referential integrity as now set forth in Claim 1. Accordingly, Claim 1 (and Claims 5, 11, and 15) appear to be patentable.

The Examiner is cordially invited to telephone the undersigned at (619) 338-8075 for any reason which would advance the instant application to allowance.

Respectfully submitted,



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MARKED UP VERSION OF AMENDED CLAIMS

1. (amended) A system for providing referential integrity for heterogenous links, comprising:
 - an RDBMS providing referential integrity for homogenous links; and
 - a software layer on top of the RDBMS for causing the RDBMS to provide referential integrity for heterogenous links, the software layer maintaining at least one data structure useful in ensuring referential integrity.
5. (amended) A computer-implemented method for preventing dangling pointers in heterogeneously scoped links, comprising the acts of:
 - providing at least one heterogeneously scoped link (HSL) table in a non-RDBMS element communicating with at least one RDBMS, at least one table having a heterogeneously scoped link column, the HSL table being associated with the heterogeneously scoped link column; and
 - accessing the HSL table to ensure referential integrity in an RDBMS.
11. (amended) A computer program product including computer usable code means programmed with logic for ensuring referential integrity in an RDBMS having at least one table with at least one column of heterogeneously scoped links, the program product comprising:
 - computer readable code means for maintaining a table in a software layer not part of the RDBMS; and
 - computer readable code means for using the table to ensure that operations on tuples in the RDBMS do not result in a heterogeneously scoped link pointing to no tuple.
15. (amended) A system for supporting triggers, comprising:
 - an RDBMS providing referential integrity for homogenous links; and
 - a software layer on top of the RDBMS for causing the RDBMS to support triggers using at least one table.